

April 25, 2007

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Application No. : **2,452,047**
Owner : **TOYOTA JIDOSHA KABUSHIKI KAISHA**
Title : **STACKED FUEL CELL, STACKED FUEL CELL
MANUFACTURING METHOD AND MANUFACTURING DEVICE
THEREOF**
Classification : **H01M 8/24 (2006.01)**
Your File No. : **08898930CA**
Examiner : **Laurent de Camprieux**

YOU ARE HEREBY NOTIFIED OF A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH
SUBSECTION 30(2) OF THE *PATENT RULES*. IN ORDER TO AVOID ABANDONMENT UNDER
PARAGRAPH 73(1)(A) OF THE *PATENT ACT*, A WRITTEN REPLY MUST BE RECEIVED WITHIN
6 MONTHS AFTER THE ABOVE DATE.

This application has been examined as originally filed.

The number of claims in this application is 14.

The search of the prior art has revealed the following:

References Applied:

United States Patent

3,717,505 □ February 20, 1973

Unkle, Jr. et al.

European Patent Office Patent

0 999 605 A2 May 10, 2000

Wariishi et al.

United States Patent

6,040,076 March 21, 2000

Reeder

Japanese Application

57130380 A2 August 12, 1982

Hitachi

□ citation stemming from a foreign search report

Unkle Jr. et al. disclose a fuel cell comprising a stacked cell unit including a plurality of stacked cells having separators (frames); an internal manifold (35) is formed so as to pass through the separators, wherein the stacked cell unit has stacked cell unit internal manifold side surfaces which form the surrounding structure of the internal manifold and which is substantially smooth. The stacked cell unit internal manifold side surface is formed in a taper shape (see figure 3a) and a sleeve (fitting 37) may be inserted within the internal manifold.

Wariishi et al. disclose a fuel cell stack comprising fuel cell units (12) and first and second separators (14, 16) which are alternately stacked with each other. Wedge members (70) are integrally inserted, over the plurality of fuel cell units (12), into communication holes (internal manifolds) of a fuel gas supply passage (38). The fluid of any one of a fuel gas, an oxygen-containing gas, and a cooling medium is uniformly delivered to each of the fuel cell units (12) via the tapered smooth internal manifold. A smoothing treatment (to give a mirror finish) is applied to the fluid flowing surface of the internal manifold member (column 7, line 43).

Reeder discloses a fuel cell comprising a stacked cell unit including a plurality of stacked cells having separators (10); an internal manifold is formed so as to pass through the separators, wherein the stacked cell unit has stacked cell unit internal manifold side surfaces which form the surrounding structure of the internal manifold and which is inherently smooth by proper machining and assembly. The separator plate is bonded to the membrane electrode assembly with bonding material (sealant).

Hitachi discloses a fuel cell comprising a stacked cell unit (3) including a plurality of stacked cells (1) having separators; a manifold is formed on the side the separators, The stacked cell unit manifold side surface is formed in a taper shape.

The examiner has identified the following defects in the application:

Claims 1-10 do not comply with paragraph 28.2(1)(b) of the *Patent Act*. Unkle, Jr. et al. disclosed the claimed subject matter before the claim date.

Claims 1-8 do not comply with paragraph 28.2(1)(b) of the *Patent Act*. Wariishi et al., and Reeder disclosed the claimed subject matter before the claim date.

The claims on file do not comply with section 28.3 of the *Patent Act*. The subject matter of these claims would have been obvious on the claim date to a person skilled in the art or science to which they pertain having regard to Unkle, Jr. et al. Wariishi et al. Reeder and Hitachi. Surface smoothing of fluid flow channels or manifold is common in the art in order to achieve a uniform fluid flow. A person skilled in the art would find it obvious to remove burrs and notches or uneven stacking of plates in any fluid flowing medium in order to improve flow.

Claims 1-8 and 9-14 are indefinite and do not comply with subsection 27(4) of the *Patent Act*. Claims 1-8, 9-14 are unclear since they do not adequately claim the invention as described and illustrated. The side surface of the stacked cell unit may be interpreted as the six sided exterior of the stack. The exterior side surfaces do not form an internal manifold and would give inoperative embodiments if claimed as such. It is clear from the drawings that the stacked cell unit has stacked

cell unit internal manifold side surfaces which form the surrounding structure or outer walls of the internal manifold.

Claims 1 and 8 are indefinite and do not comply with subsection 27(4) of the *Patent Act*. The fuel cell must be defined by structure, properties and characteristics, independently of the process for its manufacture. Surface smoothing is part of the process of manufacture. An allegedly new method of manufacture does not bestow patentability on an old product.

Claim 3 is indefinite and does not comply with subsection 27(4) of the *Patent Act*. The use of the relative term "an other surface" is indefinite in that it is not clear to which element it represents.

Claim 4 is indefinite and does not comply with subsection 27(4) of the *Patent Act*. The use of the relative term "close" is indefinite in that it represents relative terms that are open for interpretation.

Claims 7, 11 and 13 do not comply with subsection 27(4) of the *Patent Act*. The following terms have no antecedents:

"the internal manifold" (claim 7, line 30)
"the taper shape" (claim 7, line 29)
"the fuel cell" (claims 11 and 13, lines 11 and 22)

The figures and the description do not comply with section 82 of the *Patent Rules*. Reference characters not mentioned in the description must not appear in the drawings, and vice versa. Reference character "separator 11" on page 9 line 1 should read "separator 18".

Applicant is requisitioned to amend the instant description in order to correct a typographical defect on page 2 line 3 where "2H" should read "2H⁺".

In view of the foregoing defects, the applicant is requisitioned, under subsection 30(2) of the *Patent Rules*, to amend the application in order to comply with the *Patent Act* and the *Patent Rules* or to provide arguments as to why the application does comply.

Under section 34 of the *Patent Rules*, any amendment made in response to this requisition must be accompanied by a statement explaining the nature thereof, and how it corrects each of the above identified defects.

Laurent de Camprieu
Patent Examiner
819-994-0249